

ABSTRACT

A semiconductor apparatus includes, in one example, a semiconductor substrate, an electrode pad, a MOS transistor, and an analog circuit. The electrode pad includes a metal layer and formed on the semiconductor substrate. The MOS transistor is formed on the semiconductor substrate. The analog circuit is formed in a region under the electrode pad on the semiconductor substrate and comprising a resistive element including a semiconductor material. A method is also described, for manufacturing a semiconductor apparatus including a MOS transistor and an analog circuit having a resistive element of a semiconductor material.